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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,644	01/22/2004	Noa Zerangue	019282-001511US	8428

20350 7590 12/20/2006

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EXAMINER	
CHANDRA, GYAN	
ART UNIT	PAPER NUMBER
1646	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/763,644	ZERANGUE ET AL.	
	Examiner	Art Unit	
	Gyan Chandra	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14-17 and 22-24* is/are pending in the application.

4a) Of the above claim(s) *11,12,14-17,23 and 24* is/are withdrawn from consideration.

5)☐ Claim(s) *22* is/are allowed.

6)☒ Claim(s) *1, 3-10* is/are rejected.

7)☐ Claim(s) *2* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: App. AD B

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/17/05, 5/31/05, 10/19/05 and 1/30/06 .

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-10 and 22, in the reply filed on 10/5/2006, is acknowledged.

Status of Application, Amendments, And/Or Claims

Claims 1-12, 14-17 and 22-24 are pending.

Claims 11-12, 14-17 and 23-24 are withdrawn from further consideration as being drawn to a nonelected Invention.

Claims 1-10 and 22 are under examination.

Information Disclosure Statement

The information disclosure statements (IDSs) filed on 3/17/05, 3/31/05, 10/19/05 and 1/30/06 have been considered.

Specification

The disclosure is objected to because on page 7, it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "the BLASTP algorithm with a word length and the BLOSUM62 scoring matrix" in claims 1 and 4 may vary with different release versions, and a number of versions of the recited programs have been released (see release of version 2.2.15 in the attached NCBI latest news of 10/15/2006), which renders the claim indefinite. Therefore, one of ordinary skill in the art would not be able to determine the metes and bounds of the instantly claimed invention.

Claim 6 recites the limitation "the polynucleotide sequence" in line 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the transporter" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 9 also refers to the "method" of Claim 7 but claim 7 is not a method.

Claim 10 recites the limitation "the cell" in line 1. There is insufficient antecedent basis for this limitation in the claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-5 and 7-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims are drawn to an isolated polypeptide having an amino acid sequence at least 80% identical to an amino acid sequence set forth in SEQ ID NO: 2 over a region at least 40 amino acids in length or an isolated polynucleotide having a sequence that is at least 80% identical to a polynucleotide having SEQ ID NO: 1 over a region of at least 100 nucleotides in length.

The specification discloses a polypeptide of SEQ ID NO: 2 and a polynucleotide of SEQ ID NO: 1.

To provide possession of a claimed invention, the specification must provide sufficient distinguishing identifying characteristics for the invention. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, method of making an invention or any combination thereof.

The specification fails to disclose any particular portion of the polypeptide or polynucleic acid sequence that must be conserved. Further, the claims do not require any specific activity that correlates to any substitution, mutation, deletion, insertion or a combination thereof that encompasses 80% sequence identity to the claimed polypeptide or nucleic acid sequence. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus. The specification fails to describe any characteristic or structure of a genus "a polypeptide having 80% sequence identity to

the SEQ ID NO:2" or "a nucleic acid having 80% sequence identity to the SEQ ID NO: 1".

Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Vas-Cath Inc. V. Mahurka, 19 USPQ2d 1111, states that applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention, for purposes of the written descriptioninquiry, is *whatever is now claimed* (see page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (see Vas-Cath at page 1116).

A description of a genus may be achieved by means of a recitation of a representative number of species falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus. Regents of the University of California v. Eli Lilly & Co., 119 F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). In Regents of the University of California v. Eli Lilly (43 USPQ2d 1398-1412), the court held that a generic statement which defines a genus of nucleic acids by only their functional activity does not provide an adequate written description of the genus. The court indicated that, while applicants are not required to disclose every species encompassed by a genus, the description of the genus is achieved by the recitation of a representative number of species falling within the scope of the claimed genus. At section B (1), the court states

an adequate written description of a DNA ... requires a precise definition, such as by structure, formula, chemical name, or physical properties, not a mere wish or plan for obtaining the claimed chemical invention.

As discussed above, the skilled artisan cannot envision the detailed chemical structure of the polypeptide genus or genus "nucleic acid" and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of making a mutation. The compound itself is required. See Fiers v.Revel, 25USPQ2d 1601 at 1606 (CAFC 1993) and Amgen v.Baird, 30 Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. One cannot describe what one has not conceived. See Fiddes v. Baird, 30 USPQ2d 148 at 1483. In Fiddes, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. Therefore, only the polypeptide of SEQ ID NO: 2 or nucleic acid of SEQ ID NO:1, but not the breadth of the claims meet the written description provision of 35 U.S.C. § 112, first paragraph.

Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 U.S.C. 112 is severable from its enablement provision (see page 1115).

Claim 1 and 3-5 and 7-8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the polypeptide of SEQ ID NO: 2 or the nucleic acid sequence of SEQ ID NO: 1, does not reasonably provide enablement for any polypeptide having 80% sequence identity to the polypeptide of SEQ ID NO: 2 or any nucleic acid having 80% sequence identity to the polynucleotide of SEQ ID NO:

1. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Among the factors are the nature of the invention, the state of the prior art, the predictability or lack thereof in the art, the amount of direction or guidance present, the presence or absence of working examples, the breadth of the claims, and the quantity of experimentation needed.

The specification discloses that a polypeptide of SEQ ID NO: 2 or a polynucleotide of SEQ ID NO: 1 that encodes the polypeptide of SEQ ID NO: 2 which is a transporter and binds to taurocholate [0010]. However, the specification does not teach any variant, fragment, or derivative of the polypeptide other than the full-length amino acid sequence of SEQ ID NO: 2 or any nucleic acid other than the full-length nucleic acid of SEQ ID NO:1. The specification also does not teach functional or structural characteristics of the polypeptide variants, encompassed by the claims.

The problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein and DNA is extremely complex. While it is known that many amino acid substitutions are generally possible in any given protein the positions within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of success are limited. Certain positions in the sequence are critical to the protein's structure/function relationship, e.g. such as various sites or regions directly involved in binding, activity and in providing the correct three-dimensional spatial orientation of

binding and active sites. These or other regions may also be critical determinants of antigenicity. These regions can tolerate only relatively conservative substitutions or no substitutions (see Wells, 1990, Biochemistry 29:8509-8517; Ngo et al., 1994, The Protein Folding Problem and Tertiary Structure Prediction, pp. 492-495). However, Applicant has provided little or no guidance beyond the mere presentation of sequence data to enable one of ordinary skill in the art to determine, without undue experimentation, the positions in the DNA and protein which are tolerant to change (e.g. such as by amino acid substitutions or deletions), and the nature and extent of changes that can be made in these positions. Even if an active or binding site were identified in the specification, they may not be sufficient, as the ordinary artisan would immediately recognize that an active or binding site must assume the proper three-dimensional configuration to be active, which conformation is dependent upon surrounding residues; therefore substitution of non-essential residues can often destroy activity. The art recognizes that function cannot be predicted from structure alone (Bork, 2000, Genome Research 10:398-400; Skolnick et al., 2000, Trends in Biotech. 18(1): 34-39, especially p. 36 at Box 2).

Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claims and possibly screen same for activity, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of any teaching of protein structure requirements in context to the polypeptide of SEQ ID NO: 2 or the nucleic acid of SEQ ID NO: 1, the absence of working examples directed to same, the complex

nature of the invention, the state of the prior art which establishes the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite any structural or functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-5 and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kato et al (US Pub No.20040034192, priority date of 12/8/2000).

Claims 1, 3-5 and 7-8 are drawn to an isolated polypeptide having an amino acid sequence at least 80% identical to an amino acid sequence set forth in SEQ ID NO: 2 over a region at least 40 amino acids in length or an isolated polynucleotide having a sequence that is at least 80% identical to a polynucleotide having SEQ ID NO: 1 over a region of at least 100 nucleotides in length, a vector comprising the nucleic acid sequence of an isolated polynucleotide having a sequence that is at least 80% identical to a polynucleotide having SEQ ID NO: 1 over a region of at least 100 nucleotides in length, and a method of screening agents, conjugates or conjugate moieties as a substrate for the polypeptide of SEQ ID NO: 2 comprising a cell having a vector comprising the nucleic acid sequence that is at least 80% identical to a polynucleotide

having SEQ ID NO: 1 over a region of at least 100 nucleotides in length, wherein the cell is a Chinese hamster ovary cell (CHO), a human embryonic kidney or an oocyte.

Kato et al disclose a polypeptide of SEQ ID NO: 38 which is 99.9% identical to the instantly claimed polypeptide of SEQ ID NO:2 (See Appendix-A). Kato et al disclose a polynucleotide of nucleic acid sequence of SEQ ID NO:39 which is 99.8% identical to the polynucleotide sequence of the instantly claimed nucleic acid sequence of SEQ ID NO: 1(Appendix-B). Kato et al teach that the polypeptide of SEQ ID NO: 38 is a transporter and that a transporter is a membrane protein [0307] and that a transporter is usually a membrane bound protein [0003]. Kato et al teach using different vectors comprising the nucleic acid sequence and expressing them in a number of cells including CHO [0062]. Kato et al teach that a host cell comprising a vector having the polypeptide of SEQ ID NO: 38 can be used to express the protein in large quantities and to screen ligands or small molecules suitable for pharmaceutical use which inherently could be a substrate for the polypeptide [0338]. Kato et al teach using a polypeptide to make an antibody [0001, 0064, 0072, 0157]. Kato et al teach that cDNA of SEQ ID NO: 38 can be screened using DNA hybridization techniques and conditions known in the art [0066, 0348-0350]. Therefore, Kato et al teach all the limitations of the instantly claimed invention.

Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Claims 1 and 3-10 are rejected.

Claim 2 is objected.

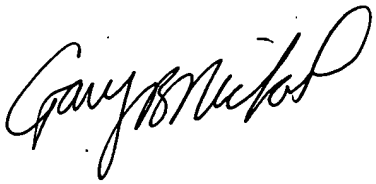
Claim 22 is allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gyan Chandra whose telephone number is (571) 272-2922. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol can be reached on (571) 272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gyan Chandra
AU 1646
5 December 2006
Fax 571-273-2922



GARY B. NICKOL, PH.D.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Appendix - A

RESULT 2
US-10-169-395-38
; Sequence 38, Application US/10169395
; Publication No. US20040034192A1
; GENERAL INFORMATION:
; APPLICANT: KATO, Seishi
; APPLICANT: KIMURA, Tomoko
; TITLE OF INVENTION: HUMAN PROTEINS HAVING HYDROPHOBIC DOMAINS AND DNAs ENCODING
; TITLE OF INVENTION: THESE PROTEINS
; FILE REFERENCE: 01997.015100.US
; CURRENT APPLICATION NUMBER: US/10/169,395
; CURRENT FILING DATE: 2002-11-29
; PRIOR APPLICATION NUMBER: JP 2000-585
; PRIOR FILING DATE: 2000-01-06
; PRIOR APPLICATION NUMBER: JP 2000-588
; PRIOR FILING DATE: 2000-01-06
; PRIOR APPLICATION NUMBER: JP 2000-2299
; PRIOR FILING DATE: 2000-01-11
; PRIOR APPLICATION NUMBER: JP 2000-26862
; PRIOR FILING DATE: 2000-02-03
; PRIOR APPLICATION NUMBER: JP 2000-58367
; PRIOR FILING DATE: 2000-03-03
; PRIOR APPLICATION NUMBER: PCT/JP00/09359
; PRIOR FILING DATE: 2000-12-28
; NUMBER OF SEQ ID NOS: 150
; SEQ ID NO 38
; LENGTH: 340
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-169-395-38

Query Match 99.9%; Score 1763; DB 4; Length 340;
Best Local Similarity 99.7%; Pred. No. 6.8e-166;
Matches 339; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MEPGRTQIKLDPRYTADLLEVLKTNYGIPSACFSQPPTAAQLLRALGPVELALTSILTLL 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MEPGRTQIKLDPRYTADLLEVLKTNYGIPSACFSQPPTAAQLLRALGPVELALTSILTLL 60

Qy         61 ALGSIAIFLEDAVYLYKNTLCPIKRRTLLWKSSAPTVVSVLCCFGLWIPRSLVLVEMTIT 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 ALGSIAIFLEDAVYLYKNTLCPIKRRTLLWKSSAPTVVSVLCCFGLWIPRSLVLVEMTIT 120

Qy        121 SFYAVCFYLLMLVMVEGFGGKEAVLRTLRDTPMMVHTGPCCCCCPCCPRLLLTRKKLQLL 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Qy        181 MLGPFQYAFLKITLTLVGLFLVPDGIYDPADISEGSTALWINTFLGVSTLLALWTLGIIS 240
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Qy        241 RQARLHLGEQNMGAKFALFQVLLILTALQPSIFSVLANGGQIACSPPYSSKTRSQVMNCH 300
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Db        301 LLILETFLMTVLTRMYYRRKDHKVGYETFSSPDLDLNLKA 340
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Appendix - B

RESULT 2
US-10-169-395-48
; Sequence 48, Application US/10169395
; Publication No. US20040034192A1
; GENERAL INFORMATION:
; APPLICANT: KATO, Seishi
; APPLICANT: KIMURA, Tomoko
; TITLE OF INVENTION: HUMAN PROTEINS HAVING HYDROPHOBIC DOMAINS AND DNAs ENCODING
; TITLE OF INVENTION: THESE PROTEINS
; FILE REFERENCE: 01997.015100.US
; CURRENT APPLICATION NUMBER: US/10/169,395
; CURRENT FILING DATE: 2002-11-29
; PRIOR APPLICATION NUMBER: JP 2000-585
; PRIOR FILING DATE: 2000-01-06
; PRIOR APPLICATION NUMBER: JP 2000-588
; PRIOR FILING DATE: 2000-01-06
; PRIOR APPLICATION NUMBER: JP 2000-2299
; PRIOR FILING DATE: 2000-01-11
; PRIOR APPLICATION NUMBER: JP 2000-26862
; PRIOR FILING DATE: 2000-02-03
; PRIOR APPLICATION NUMBER: JP 2000-58367
; PRIOR FILING DATE: 2000-03-03
; PRIOR APPLICATION NUMBER: PCT/JP00/09359
; PRIOR FILING DATE: 2000-12-28
; NUMBER OF SEQ ID NOS: 150
; SEQ ID NO 48
; LENGTH: 1023
; TYPE: DNA
; ORGANISM: Homo sapiens
US-10-169-395-48

Query Match 99.8%; Score 1021.4; DB 8; Length 1023;
Best Local Similarity 99.9%; Pred. No. 2.7e-303;
Matches 1022; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy         61 GTGCTGAAGACCAATTACGGCATCCCCTCCGCCTGCTTCTCTCAGCCTCCCACAGCAGCC 120
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Qy        121 CAACTCCTGAGAGCCCTGGGCCCTGTGGAACTTGCCCTCACTAGCATCCTGACCTTGCTG 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Qy        181 GCGCTGGGCTCCATTGCCATCTTCCTGGAGGATGCCGTCTACCTGTACAAGAACACCCTT 240
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Qy        241 TGCCCCATCAAGAGGCGGACTCTGCTCTGGAAGAGCTCGGCACCCACGGTGGTGTCTGTG 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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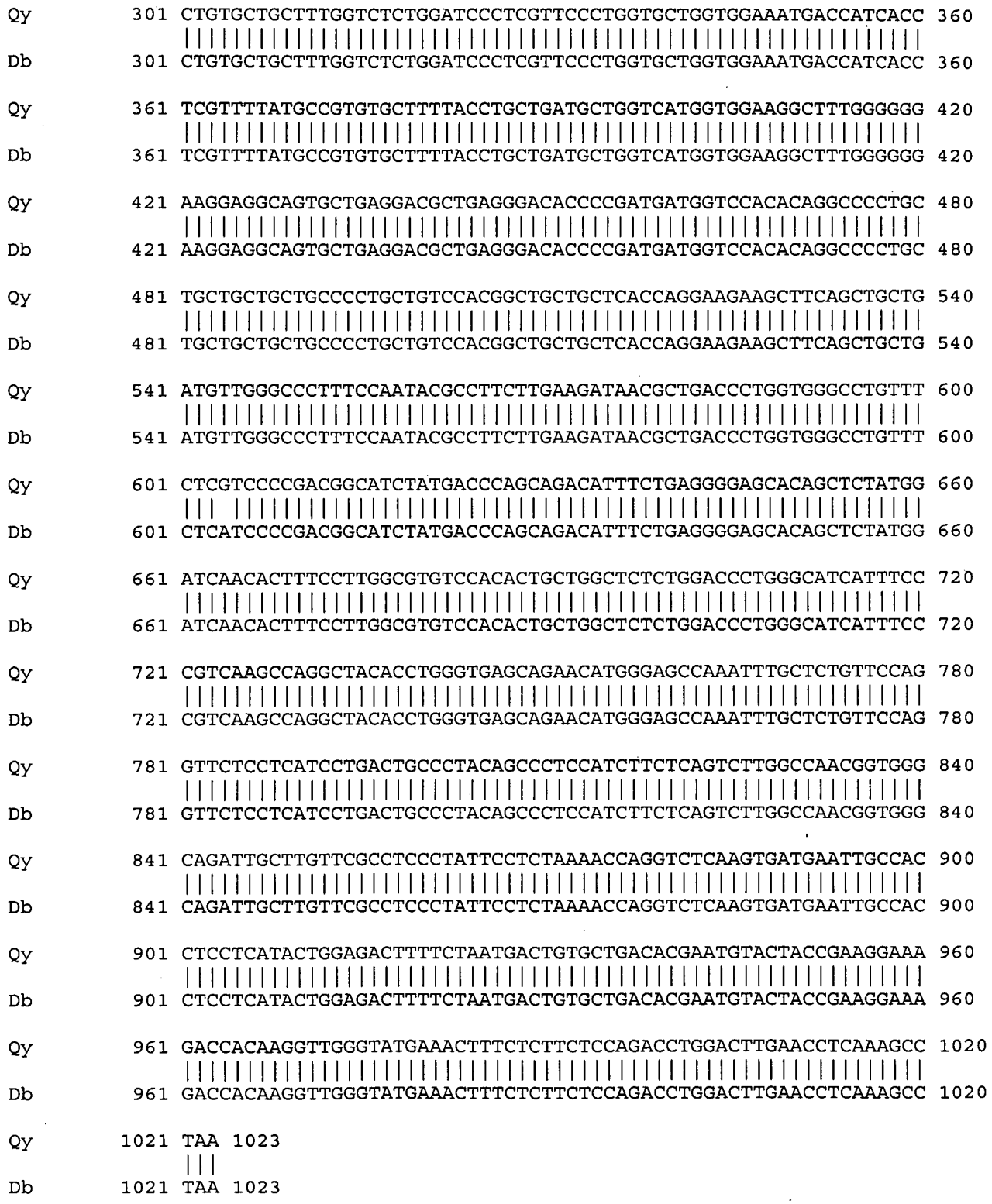
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Db 301 CTGTGCTGCTTTGGTCTCTGGATCCCTCGTTCCCTGGTGCTGGTGGAAATGACCATCACC 360
Qy 361 TCGTTTTATGCCGTGTGCTTTTACCTGCTGATGCTGGTCATGGTGGAAGGCTTTGGGGGG 420
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Qy 481 TGCTGCTGCTGCCCCTGCTGTCCACGGCTGCTGCTCACCAGGAAGAAGCTTCAGCTGCTG 540
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Qy 601 CTCGTCCCCGACGGCATCTATGACCCAGCAGACATTTCTGAGGGGAGCACAGCTCTATGG 660
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Qy 661 ATCAACACTTTCCTTGGCGTGTCCACACTGCTGGCTCTCTGGACCCTGGGCATCATTTCC 720
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Qy 721 CGTCAAGCCAGGCTACACCTGGGTGAGCAGAACATGGGAGCCAAATTTGCTCTGTTCCAG 780
Db 721 CGTCAAGCCAGGCTACACCTGGGTGAGCAGAACATGGGAGCCAAATTTGCTCTGTTCCAG 780
Qy 781 GTTCTCCTCATCCTGACTGCCCTACAGCCCTCCATCTTCTCAGTCTTGGCCAACGGTGGG 840
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Qy 841 CAGATTGCTTGTTCGCCTCCCTATTCCTCTAAAACCAGGTCTCAAGTGATGAATTGCCAC 900
Db 841 CAGATTGCTTGTTCGCCTCCCTATTCCTCTAAAACCAGGTCTCAAGTGATGAATTGCCAC 900
Qy 901 CTCCTCATACTGGAGACTTTTCTAATGACTGTGCTGACACGAATGTACTACCGAAGGAAA 960
Db 901 CTCCTCATACTGGAGACTTTTCTAATGACTGTGCTGACACGAATGTACTACCGAAGGAAA 960
Qy 961 GACCACAAGGTTGGGTATGAAACTTTCTCTTCTCCAGACCTGGACTTGAACCTCAAAGCC 1020
Db 961 GACCACAAGGTTGGGTATGAAACTTTCTCTTCTCCAGACCTGGACTTGAACCTCAAAGCC 1020
Qy 1021 TAA 1023
Db 1021 TAA 1023